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# PREVENTION AND MANAGEMENT OF MARINE LITTER AND IMPROVING MARINE TOURISM

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## ARTICLE INFO

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## ABSTRACT

There was a time, when nations felt fortunate if their national boundaries were marked by bodies of water. This sense seemed to be proportionate to the expanse, depth, and length of the body of water marking the national territory. Knowing that water is not the natural habitat of humans, the nations, particularly with marine boundaries, felt a sense of security because traversing the expanse of oceans would have been a daunting task. However, with the progress of civilization, floating vessels appeared on the water expanses and advances in marine navigation and engineering transformed the vessels from wind dependent sailboats to steam propelled ships. This, in turn, changed the role of oceans from the daunting barriers to the routes of marine trade. Today, in the age of globalization, not only the exotic items but also the items of daily necessities such as clothing, food products, and oil (the life blood of modern society) are transported over oceanic routes and claim more than an 80percent share of international traffic. Today, although the nations with expansive marine coast and harbours can be considered fortunate in that they have easy access to global trade, they have also become the recipients of marine pollution caused by marine traffic. Naturally, there is a call for increase in regulation of growing international marine traffic and pollution. For decades, such calls are handled by the International Maritime Organization (IMO or the Organization). The organization came into existence on March 17, 1958 when the IMO Convention took effect. Until 1982, the IMO was known as International Maritime Consultative Organization or IMCO. It has functioned as an arm of the United Nations and is responsible regulating international maritime affairs. In keeping with the changing times its mission has evolved from regulation of international shipping to the current mission expressed as "Safe, Secure and Efficient Shipping on Clean Oceans." In less than 50 years it has developed close to 40 conventions. Five of these conventions deal exclusively with marine environment and are in force while two more environmental conventions have been adopted and will soon take effect. Along with the IMO, which has played a prominent role at the global level in developing international legal instruments, several regional organizations are also addressing the issue and are developing legal instruments to do so.

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## INTRODUCTION

There was a time, when nations felt fortunate if their national boundaries were marked by bodies of water. This sense seemed to be proportionate to the expanse, depth, and length of the body of water marking the national territory. Knowing that water is not the natural habitat of humans, the nations, particularly with marine boundaries, felt a sense of security because traversing the expanse of oceans would have been a daunting task. However, with the progress of civilization, floating vessels appeared on the water expanses and advances in marine navigation and engineering transformed the vessels from wind dependent sailboats to steam propelled ships. This, in turn, changed the role of oceans from the daunting barriers to the routes of marine trade. Today, in the age of globalization, not only the exotic items but also the items of daily necessities such as clothing, food products, and oil (the life blood of modern society) are transported over oceanic routes and claim more than an 80percent share of international traffic. Today, although the nations with expansive marine coast and harbours can be considered fortunate in that they have easy access to global trade, they have also become the recipients of marine pollution caused by marine traffic. Naturally, there is a call for increase in regulation of growing

international marine traffic and pollution. For decades, such calls are handled by the International Maritime Organization (IMO or the Organization). The organization came into existence on March 17, 1958 when the IMO Convention took effect. Until 1982, the IMO was known as International Maritime Consultative Organization or IMCO. It has functioned as an arm of the United Nations and is responsible regulating international maritime affairs. In keeping with the changing times its mission has evolved from regulation of international shipping to the current mission expressed as "Safe, Secure and Efficient Shipping on Clean Oceans." In less than 50 years it has developed close to 40 conventions. Five of these conventions deal exclusively with marine environment and are in force while two more environmental conventions have been adopted and will soon take effect. Along with the IMO, which has played a prominent role at the global level in developing international legal instruments, several regional organizations are also addressing the issue and are developing legal instruments to do so. Many of these organizations, including the IMO, have developed informative information made available to all. Exhaustive treatment of these resources will fill up volumes and take considerable time and money. So, for the time being, this article will focus on and discuss the information that they have made available at no charge, and their efforts that are resulting in new international marine environmental law. In addition, this article will also discuss valuable information resources that are developed by several non-governmental entities and made available at no cost. The article focuses on marine litter and how to improve economy through Marine Tourism without affecting the Environment.

**Marine Litter:** Marine litter is human-- created waste that has been discharged into the coastal or marine environment. Marine litter is ugly and harm ocean eco systems, wildlife and humans. Its effects have prompted governments, private enterprise, environmental groups and countless citizens to take action.[1] In March 2011, leaders from plastics organisations across the globe signed a declaration to combat marine litter. The declaration of the Global Plastics Associations for Solutions on Marine Litter represented a public commitment by a global industry to tackle a global problem that is use of plastics in the Marine Environment. Recognizing their important role in fighting marine litter, these plastics associations have made six public commitments that are aimed at contributing to sustainable solutions. These focus on education, research, public policy, sharing best practices, plastics recycling/recovery and plastic pellet containment. To fulfil these commitments, there are more than 140 projects carried throughout the world half underway or completed. This represents a nearly 50 percent increase in the number of projects since the Declaration. 58 Associations representing 34 Countries have signed the Declaration on December 2012.[2] The United Nations that is responsible for developing international legal instruments dealing with maritime regulations guides a user from the workings of the organization itself to the status of developed and developing treaties.

Various IMO affiliates assist the Organization in its mission of maintaining safe and clean oceans. Their websites - as described below:

- **GESAMP** – Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. Deals with all scientific aspects on the prevention, reduction and control of the degradation of the marine environment
- **GLOBALLAST** – Global Ballast Water Management Programme. Addresses the issue of invasive aquatic species
- **Global Marine Litter Information Gateway** – Focuses on the global, regional and local problem of marine litter.
- **London Convention 1972** – Convention on the Prevention of Maritime Pollution by Dumping Waste and Other Matters.
- **Regional Marine Pollution Emergency Response Center** – Assists Mediterranean coastal States in the implementation of the Protocol concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency.
- **PEMSEA** - Regional Programme for Marine Pollution Prevention and Management in the East Asian Seas region. Established to work on trans-boundary environmental challenges in the region.
- **Marine Electronic Highway** – integrates maritime safety technologies and environmental management systems. Works to enhance the safety of shipping along the Straits of Malacca in South-East Asia.
- Marine Environment Protection Committee plays a vital role in developing the instruments to protect the marine environment. Documents issued in connection with the session of the Marine Environment Protection Committee are available online in their official web pages.

Unlike the UN treaty database, the United Nations Environmental Programme – along with the Environmental Law Instruments index as well as Environmental Statistics - and the information herein provides invaluable supplementary and complementary information about the legal instruments which specifically deal with the marine environment.

**National and/or Regional Web pages:** These are the national and regional laws and policies which may have bearing on the international instruments. Examples are:

- **Australia**: International Marine Issues, Links, Australian Maritime Safety Authority – Marine Environment Protection and the Australian Quarantine and Inspection Service (AQIS).
- **Europe**: Baltic Marine Environment Protection Commission (Helsinki Commission), and European Maritime Safety Agency.
- **New Zealand**: Maritime Safety Authority of New Zealand.
- **South Asia**: South Asian Programme in Ocean Law Policy and Management.
- **United States**: Environment Protection Agency's Implementation of Marine Pollution Treaties and International Agreements, the National Oceanic and Atmospheric Administration's National Oceanographic Data Center, and U. S. shipping statistics and trends from the U. S. Maritime Administration are a few such sites.

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[1] http://www.marinelittersolutions.com/who--we--are/joint--declaration.aspx. last visited date 27.05.2014.
[2] http://www. Marinelitter solutions.com – The Declaration of the Global Plastics Associations on Marine Litter – Progress Report – December 2012.

Since the 1992 Earth Summit in Rio de Janeiro, there is increasing awareness of the importance of sustainable forms of tourism. Although tourism, is one of the world largest industries, was not the subject of a chapter in Agenda 21, the Programme for the further implementation of Agenda 21, adopted by the General Assembly at its nineteenth special session in 1997, included sustainable tourism as one of its sectoral themes. Furthermore in 1996, The World Tourism Organization jointly with the tourism private sector issued an Agenda 21 for the Travel and Tourism Industry, with 19 specific areas of action recommended to governments and private operators towards sustainability in tourism.

**Specific situation of coastal areas:** Coastal areas are transitional areas between the land and sea characterized by a very high biodiversity and they include some of the richest and most fragile ecosystems on earth, like mangroves and coral reefs. At the same time, coasts are under very high population pressure due to rapid urbanization processes. More than half of today's world population live in coastal areas (within 60 km from the sea) and this number is on the rise. Additionally, among all different parts of the planet, coastal areas are those which are most visited by tourists and in many coastal areas tourism presents the most important economic activity. In the Mediterranean region for example, tourism is the first economic activity for islands like Cyprus, Malta, the Balearic Islands and Sicily. This slowly has an impact in India as well in the recent past places in Goa, Kerala, Sri Lanka, Andaman and Nicobar Islands were marine tourism is given a lot more importance by the State Government itself. Informations shared by WTO estimate that international tourist arrivals to the Mediterranean coast will amount to 270 millions in 2010 and to 346 millions in 2020 (in 2000 around 200 million foreign visitors per year).[3]

**Main sources of impact**

- Residence in the coastal zone.
- Fisheries and aquaculture.
- Shipping.
- Tourism.
- Land-use practices (Agriculture, Industrial development).
- Climate change.

**Resulting problems**

- Loss of marine resources due to destruction of coral reefs, overfishing.
- Pollution of marine and freshwater resources.
- Soil degradation and loss of land resources (e.g. desertification and salinification due to excessive water use, overuse of fertilizers, erosion).
- Air pollution.
- Loss of cultural resources, social disruption.
- Loss of public access.
- Natural hazards and sea level rise.
- Climate change.

**Does Tourism damage Coastal Environment:** Massive influxes of tourists, often to a relatively small area, have a huge impact. They add to the pollution, waste, and water needs of the local population, putting local infrastructure and habitats under enormous pressure. For example, 85percnt; of the 1.8 million people who visit Australia's Great Barrier Reef are concentrated in two small areas, Cairns and the Whitsunday Islands, which together have a human population of just 130,000 or so.

**Tourist infrastructure:** In many areas, massive new tourist developments have been built - including airports, marinas, resorts, and golf courses. Overdevelopment for tourism has the same problems as other coastal developments, but often has a greater impact as the tourist developments are located at or near fragile marine ecosystems. For example:

- mangrove forests and seagrass meadows have been removed to create open beaches
- tourist developments such as piers and other structures have been built directly on top of coral reefs
- nesting sites for endangered marine turtles have been destroyed and disturbed by large numbers of tourists on the beaches

**Careless resorts, operators, and tourists:** The damage doesn't end with the construction of tourist infrastructure. Some tourist resorts empty their sewage and other wastes directly into water surrounding coral reefs and other sensitive marine habitats. Recreational activities also have a huge impact. For example, careless boating, diving, snorkelling, and fishing have substantially damaged coral reefs in many parts of the world, through people touching reefs, stirring up sediment, and dropping anchors. Marine animals such as whale sharks, seals, dugongs, dolphins, whales, and birds are also disturbed by increased numbers of boats, and by people approaching too closely. Tourism can also add to the consumption of seafood in an area, putting pressure on local fish populations and sometimes contributing to overfishing. Collection of corals, shells, and other marine souvenirs - either by individual tourists, or local people who then sell the souvenirs to tourists - also has a detrimental effect on the local environment.

**Cruise ships: Floating towns:** The increased popularity of cruise ships has also adversely affected the marine environment. Carrying up to 4,000 passengers and crew, these enormous floating towns are a major source of marine pollution through the dumping of garbage and untreated sewage at sea, and the release of other shipping-related pollutants.

**Problems**

- Discharge of sewage in marinas and near shore coastal areas.
- The lack of adequate port reception facilities for solid waste, especially in many small islands, as well as the frequent lack of garbage storing facilities on board can result in solid wastes being disposed of at sea, and being transported by wind and currents to shore often in locations distant from the original source of the material.
- "Tar balls" on beaches indicate that oil tankers and other ships dump their oil and garbage overboard (despite laws against such practice), while pollution

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[3] United Nations WTO Tourism Vision 2020 forecast report, http://www.netcoast.nl/coastlearn/website/tourism/ dated 27.05.2014.

off Florida and in the Gulf of Mexico is causing serious concern.

- Land-based activities such as port development and the dredging that inevitably accompanies it in order to receive cruise ships with sometimes more than 3000 passengers can significantly degrade coral reefs through the build up of sediment. Furthermore, sand mining at the beaches leads to coastal erosion.
- In the Cayman Islands damage has been done by cruise ships dropping anchor on the reefs. Scientists have acknowledged that more than 300 acres of coral reef have already been lost to cruise ship anchors in the harbour at George Town, the capital of Grand Cayman.
- The potential socio-cultural stress produced by cruise tourism needs to be mentioned as well, since it means that during very short periods there is high influx of people, sometimes more than the local inhabitants of small islands, demanding food, energy, water, etc. and possibly overrunning local communities.[4]

**Environmental impacts:** Tourism can create great pressure on local resources such as energy, food, land and water that may already be in short supply. According to the Third Assessment of Europe's environment (EEA, 2003), the direct local impacts of tourism on people and the environment at destinations are strongly affected by concentration in space and time (seasonality).

**They result from**

- The intensive use of water and land by tourism and leisure facilities.
- The delivery and use of energy.
- Changes in the landscape coming from the construction of infrastructure, buildings and facilities.
- Air pollution and waste.
- The compaction and sealing of soils (damage and destruction of vegetation).
- The disturbance of fauna and local people (for example, by noise).

**Impacts on biodiversity:** Tourism can cause loss of biodiversity in many ways, e.g. by competing with wildlife for habitat and natural resources. More specifically, negative impacts on biodiversity can be caused by various factors.

**Socio-cultural impacts**

**Change of local identity and values**

- Commercialization of local culture: Tourism can turn local culture into commodities when religious traditions, local customs and festivals are reduced to conform to tourist expectations and resulting in what has been called "reconstructed ethnicity"
- Standardization: Destinations risk standardization in the process of tourists desires and satisfaction: while landscape, accommodation, food and drinks, etc., must meet the tourists expectation for the new and unfamiliar situation. They must at the same time not

be too new or strange because few tourists are actually looking for completely new things. This factor damages the variation and beauty of diverse cultures.

- Adaptation to tourist demands: Tourists want to collect souvenirs, arts, crafts, cultural manifestations. In many tourist destinations, craftsmen have responded to the growing demand and have made changes in the design of their products to make them more attractive to the new customers. Cultural erosion may occur in the process of commercializing cultural traditions.

**Cultural clashes may arise through**

- Economic inequality - between locals and tourists who are spending more than they usually do at home.
- Irritation due to tourist behaviour - Tourists often, out of ignorance or carelessness, fail to respect local customs and moral values.
- Job level friction - due to a lack of professional training, many low-paid tourism-jobs go to local people while higher-paying and more prestigious managerial jobs go to foreigners or "urbanized" nationals.

**Benefits of Sustainable Coastal Tourism**

**Economic Benefit:** The main positive economic impacts of sustainable coastal tourism are: contributions to government revenues, foreign exchange earnings, generation of employment and business opportunities. Further information on economic contributions of tourism can be found on the website of the World Travel and Tourism Council.

**Contribution to Government Revenues:** Government revenues from the tourism sector can be categorised as direct and indirect contributions. Direct contributions are generated by income taxes from tourism and employment due to tourism, tourism businesses and by direct charges on tourists such as ecotax. Indirect contributions derive from taxes and duties on goods and services supplied to tourists, for example, taxes on tickets or entry passes to any protected areas, souvenirs, alcohol, restaurants, hotels, service of tour operators.

**Foreign Exchange Earnings:** Tourism expenditures, the export and import of related goods and services generate income to the host economy. Tourism is a main source of foreign exchange earnings for at least 38 percent; of all countries World Tourism Organisation.

**Employment Generation:** The rapid expansion of international tourism has led to significant employment creation. Tourism can generate jobs directly through hotels, restaurants, taxis, souvenir sales and indirectly through the supply of goods and services needed by tourism-related businesses; for e.g. conducted tour operators. Tourism represents around 7 percent; of the world's employees World Tourism Organisation. Stimulation of infrastructure investment Tourism can influence the local government to improve the infrastructure by creating better water and sewage systems, roads, electricity, telephone and public transport networks. All this can improve the standard of living for residents as well as facilitate tourism.

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[4] Sustainable Tourism Management in Coastal Areas, Eugenio Yunis 2001. – The New Indian Express Report dated January 2014.

**Contribution to Local Economies:** Tourism can be a significant or even an essential part of the local economy. As environment is a basic component of the tourism industry's assets, tourism revenues are often used to measure the economic value of protected areas. Part of the tourism income comes from informal employment, such as street vendors and informal guides. The positive side of informal or unreported employment is that the money is returned to the local economy and has a great multiplier effect as it is spent over and over again. The World Travel and Tourism Council estimates that tourism generates an indirect contribution equal to 100 percent; of direct tourism expenditures.

**Direct Financial Contributions to Nature Protection:** Tourism can contribute directly to the conservation of sensitive areas and habitats. Revenue from park-entrance fees and similar sources can be allocated specifically to pay for the protection and management of environmentally sensitive areas. Some governments collect money in more far-reaching and indirect ways that are not linked to specific parks or conservation areas. User fees, income taxes, taxes on sales or rental of recreation equipment and license fees for activities such as hunting and fishing can provide governments with the funds needed to manage natural resources.

**Competitive Advantage:** More and more tour operators take an active approach towards sustainability. Not only because consumers expect them to do so but also because they are aware that intact destinations essential for the long term survival of the tourism industry. More and more tour operators prefer to work with suppliers who act in a sustainable manner, e.g. saving water and energy, respecting the local culture and supporting the well being of local communities. In 2000 the international Tour Operators initiative for Sustainable Tourism was founded with the support of UNEP.

**Environmental Management and Planning Benefits:** Sound and efficient environmental management of tourism facilities and especially hotels (e.g. water and energy saving measures, waste minimization, and use of environmentally friendly material) can decrease the environmental impact of tourism. Planning helps to make choices between the conflicting interests of industry and tourism, in order to find ways how to make them compatible. By planning sustainable tourism development strategy at an early stage, prevents damages and expensive mistakes, thereby avoiding the gradual deterioration of the quality of environmental goods and services significant to tourism.

**Socio-Cultural Benefits**

**Tourism as a force for Peace:** Travelling brings people into contact with each other. As sustainable tourism has an educational element it can foster understanding between people and cultures and provide cultural exchange between guests and hosts. This increases the chances for people to develop mutual sympathy, tolerance and understanding and to reduce prejudices and promote the sense of global brotherhood.

**Strengthening Communities:** Sustainable Coastal Tourism can add to the vitality of communities in many ways. For e.g. Events and Festivals of the Local Communities, where they have been the primary Participants and Spectators. Often these are refreshed, reincarnated and developed in response to

tourists interest. The jobs created by tourism can act as a very important motivation to reduce emigration from rural areas. Local people can also increase their influence on tourism development, as well as improve their jobs and earnings prospects through tourism-related professional training and development of business and organizational skills.

**Revitalisation of Culture and Traditions:** Sustainable Tourism can also improve the preservation and transmission of cultural and historical traditions. Contributing to the conservation and sustainable management of natural resources can bring usually the chance to protect local heritage or to revitalize native cultures, for instance by regenerating traditional arts and crafts.

**Encouragement Social Involvement and Pride:** In some situations, tourism also helps to raise local awareness concerning the financial value of natural and cultural sites. It can stimulate a feeling of pride in local and national heritage and interest in its conservation. More broadly, the involvement of local communities in sustainable tourism development and operation seems to be an important condition for the sustainable use and conservation of the biodiversity.

**Benefits for the Tourists of Sustainable Tourism:** The benefits of sustainable tourism for visitors are plenty: they can enjoy unspoiled nature and landscapes, environmental quality of goods or services (clean air and water), a healthy community with low crime rate, thriving and authentic local culture and traditions.[5]

**Sustainable Tourism Strategy**

**Strategy Development:** A Sustainable Tourism Strategy is based on the information collected. It defines the priority issues, the stakeholder community, the potential objectives and a set of methodologies to reach these objectives. These include:

- Conservation of specific coastal landscapes or habitats that make the area attractive or are protected under nature conservation legislation.
- Development of regionally specific sectors of the economy that can be interlinked with the tourism sector (e.g. production of food specialities and handicrafts).
- Maximising local revenues from tourism investments.
- Enabling self-determined cultural development in the region, etc.

**Action plan:** The Action Plan describes the steps needed to implement the strategy and addressing a number of practical questions such as: which organizations will take up which activities, over what time frame, by what means and with which resources? As the actions have to be considered on the basis of regional circumstances, there is no standard action plan for all. However, Action Plans usually include measures in the following fields:

- **Administration:** e.g. promotion of co-operation between sectors and of cross-sectorial development models; involving local people in drafting tourism policy and decisions

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[5] http://www.netcoast.nl/coastlearn/website/tourism/ last visited date 27.05.2014.

- **Socio-economical sector:** e.g. promoting local purchasing of food and building material; setting up networks of local producers for better marketing; development of new products to meet the needs of tourists, etc.
- **Environment:** e.g. improving control and enforcement of environmental standards (noise, drinking water, bathing water, waste-water treatment, etc.), identification and protection of endangered habitats; creation of buffer zones around sensitive natural areas; prohibition of environmentally harmful sports in jeopardised regions; strict application of Environmental Impact Assessment (EIA) and Strategic Environmental Assessment procedures on all tourism related projects and programs
- **Knowledge:** training people involved in coastal tourism about the value of historical heritage; environmental management; training protected area management staff in nature interpretation; raising environmental awareness among the local population; introducing a visitors information programme (including environmental information).[6]

**Conclusions**

During the last century, beaches have completely reversed their role they have become the driving force behind the economic welfare instead of just being an inhospitable place. However, the demographic pressure and the overuse of the territory related to those factors, in the hinterland (dams in the rivers, farming and tourism) as well as in the proper beach (sewage discharge, dry goods extraction and crops) have caused a general decrease in the contribution of sediments to the beaches with a continental or a marine origin. It is hard to find a unique solution for all those problems. However, it should be absolutely essential to follow these points:

- First, an Integrated Coastal Zone Management.
- Second, a better dissemination of the existing information should be achieved. For that purpose, a better coordination of the existing governmental bodies that deal with coastal management is necessary.
- Third, an improvement of the environmental education is essential for a sustainable development of the coast.

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[6]   http://www.netcoast.nl/coastlearn/website/tourism/   last visited date 27.05.2014.

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